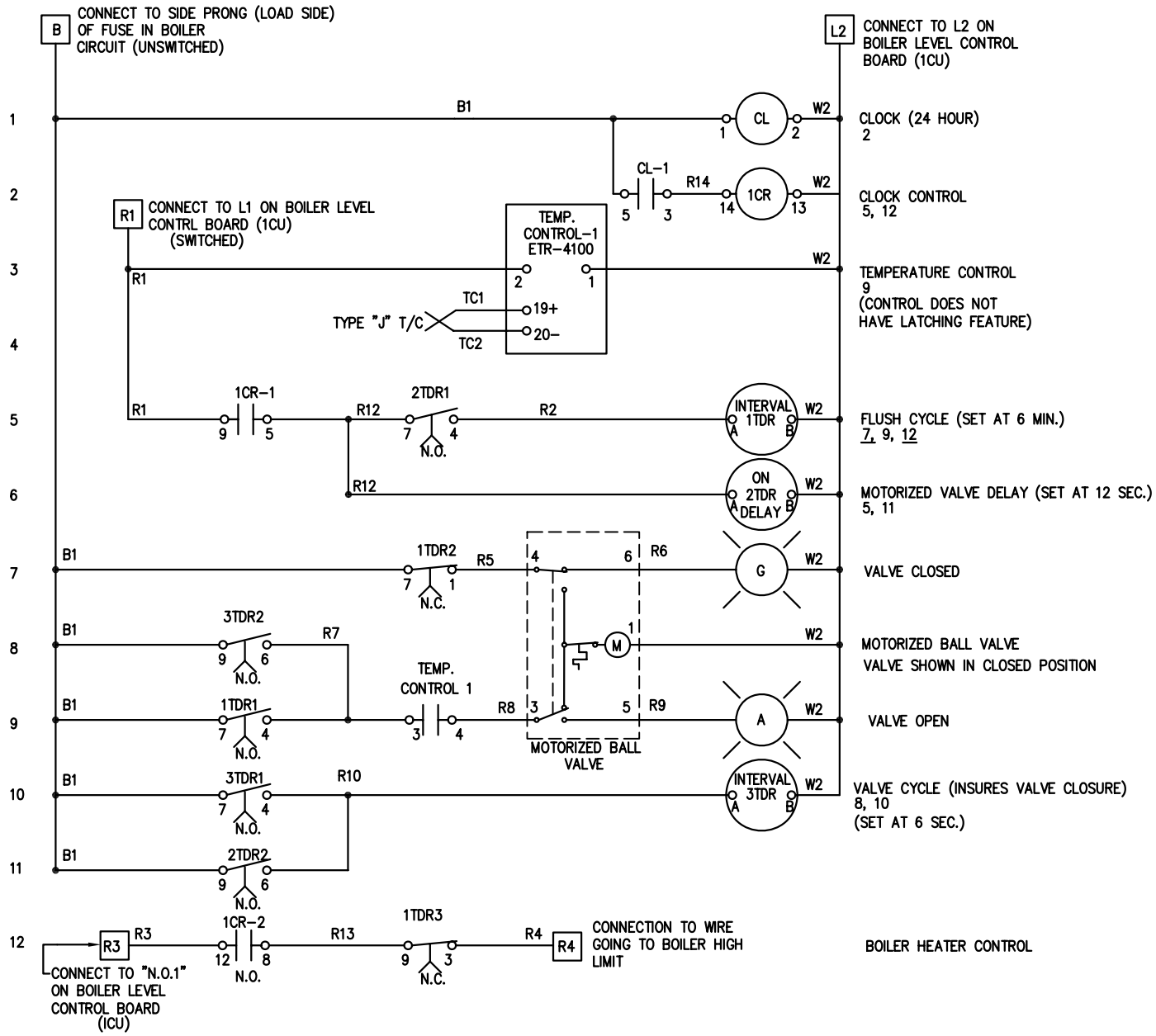
REVISIONS							
ZONE	REV	DESCRIPTION	DATE	DWN	CHKR	ENGR	APVD
	1	ETR-4120 obsolete – replace with ETR-4100	7/19/07	EAZ	DAP	EAZ	DAP



MODE OF OPERATION FOR AUTO FLUSH SYSTEM

1. POWER IS TURNED ON, EITHER BY SWITCH AT BREAKER BOX OR BOILER ON/OFF SWITCH, OR 24 HOUR CLOCK CONTROL.
   A. BOILER HEATERS ARE ENERGIZED WHEN 24 HOUR CLOCK IS IN ON POSITION (LIGHT ALUMINIZED ON CLOCK FACE) AND AFTER SIX MINUTE FLUSH CYCLE.
2. POWER IS APPLIED TO 2TDR COIL. THE 12 SECOND DELAY ALLOWS TEMPERATURE CONTROL (ETR-4100) TO STABLIZE BEFORE THE CONTACTS ON THE TEMPERATURE CONTROL WILL ACTIVATE.
3. AS 2TDR COIL TIMES OUT, CONTACT 2TDR1 AND 2TDR2 WILL CLOSE. THE ACTION OF 2TDR1 WILL BE DISCUSSED FIRST.
   A. 2TDR1 CLOSES. THE COIL ON THE FLUSH CYCLE (1TDR) INTERVAL RELAY IS ENERGIZED. THIS CLOSES 1TDR1, AND OPENS 1TDR2 AND 1TDR3. THESE WILL BE DISCUSSED IN ORDER.
      (1). 1TDR1 CLOSES. IF THE SET POINT ON THE CONTROLLER ETR-4100 IS HIGHER THAN THE BOILER WATER TEMPERATURE, THE MOTORIZED BALL VALVE WILL OPEN. THE VALVE WILL REMAIN OPEN FOR 6 MINUTES OR CLOSE IF THE POWER IS DEACTIVATED. WHEN THE VALVE IS OPEN THE VALVE CLOSED LIGHT WILL TURN OFF AND THE VALVE OPEN LIGHT WILL ACTIVATE. IF THE SET POINT ON THE CONTROLLER ETR-4100 IS LOWER THAN BOILER WATER TEMPERATURE, THE BALL VALVE WILL NOT OPEN.
      (2). 1TDR2 OPENS. THIS DEACTIVATES THE VALVE CLOSING CURCUIT WHILE THE VALVE IS OPEN.
      (3). 1TDR3 OPENS. THIS DEACTIVATES THE HEATER CIRCUIT WHILE THE FLUSH VALVE IS OPEN.
   B. 2TDR2 CLOSES. THIS ENERGIZES THE COIL ON THE 6 SECOND INTERVAL 3TDR. THE CLOSING OF 3TDR2 MAINTAINS POWER TO THE VALVE WHILE IT IS OPENING IN THE EVENT THE BOILER ON/OFF SWITCH IS TURNED OFF. IN THE EVENT OF POWER FAILURE DURING THE OPEN CYCLE OF THE VALVE, THE VALVE WILL REMAIN OPEN UNTIL POWER IS RESTORED. THE VALVE WILL THEN COMPLETE THE OPEN CYCLE AFTER A 7 SECOND DELAY. THE FUCNTION OF 3TDR1 CLOSING PREVENTS A RELAY RACE WITH THE MOTORIZED BALL VALVE CONTACTS AND 3TDR WHICH CAUSES ERRATIC OPERATION.
4. AT THE END OF THE FLUSH CYCLE THE INTERVAL COIL 1TDR WILL TIME OUT AND OPEN 1TDR1 AND CLOSE 1TDR2 AND 1TDR3. THIS WILL DEACTIVATE POWER TO THE VALVE OPEN CIRCUIT. IT WILL ACTIVATE THE VALVE CLOSE CIRCUIT AND THE HEATER CIRCUIT. THE VALVE OPEN LIGHT WILL DEACTIVATE AND THE VALVE CLOSED LIGHT WILL ACTIVATE.
5. THE AUTO FLUSH SYSTEM WILL REMAIN IN THE VALVE CLOSED MODE UNTIL POWER IS REMOVED OR THE 24 HOUR CLOCK DEACTIVATES THE POWER. FLUSHING VALVE WILL ONLY ACTIVATE IF TEMPERATURE SET POINT IS ABOVE BOILER WATER TEMPERATURE.
6. IF FLUSH BALL VALVE IS OPEN IT MAY BE CLOSED AT ANY TIME DURING THE FLUSH BY DEACTIVATING THE BOILER ON/OFF SWITCH.
7. IF BOILER IS TURNED OFF, THEN ON, WHILE BOILER TEMPERATURE IS ABOVE SET POINT OF THE CONTROLLER ETR-4100 THE VALVE WILL NOT OPEN. THERE WILL BE A 6 MINUTE DELAY BEFORE THE HEATER CIRCUIT IS ACTIVATED.

NOTES:

1. IDEC TYPE RTE-B11 TIME DELAY RELAYS.
2. IF VALVE IS OPEN IT WILL AUTOMATICALLY CLOSE IF BOILER SWITCH IS TURNED OFF.

DWG NO 337-300443-009 SHT 1

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. TOLERANCES ARE: FRACTIONS ±1/32 DECIMALS .XX ±0.01 .XXX ±0.005 ANGLES ±2°

MATERIALS

FINISH

THIS DRAWING AND THE SUBJECT MATTER SHOWN HEREON IS CONSIDERED CONFIDENTIAL AND MAY BE PROPRIETARY. UN-AUTHORIZED DISCLOSURE TO OTHER PARTIES IS EXPRESSLY FORBIDDEN.

CONTRACT NO

USED ON

APPROVALS		DATE
DWN	ALT	10/28/2002
CHKR	RCJ	10/30/2002
ENGR	SWH	10/30/2002
APVD	LTA	10/30/2002
DWO .		CO# .
CAD#		

Chromalox®
PRECISION HEAT AND CONTROL
Ogden, Utah 84404
www.chromalox.com

WIRING DIAGRAM AUTO FLUSH SYSTEM "B MOD"

SIZE	CODE IDENT	DRAWING NO	REV
C	07131	337-300443-009	1

SCALE FULL | DO NOT SCALE DRAWING | SHEET 1 OF 1